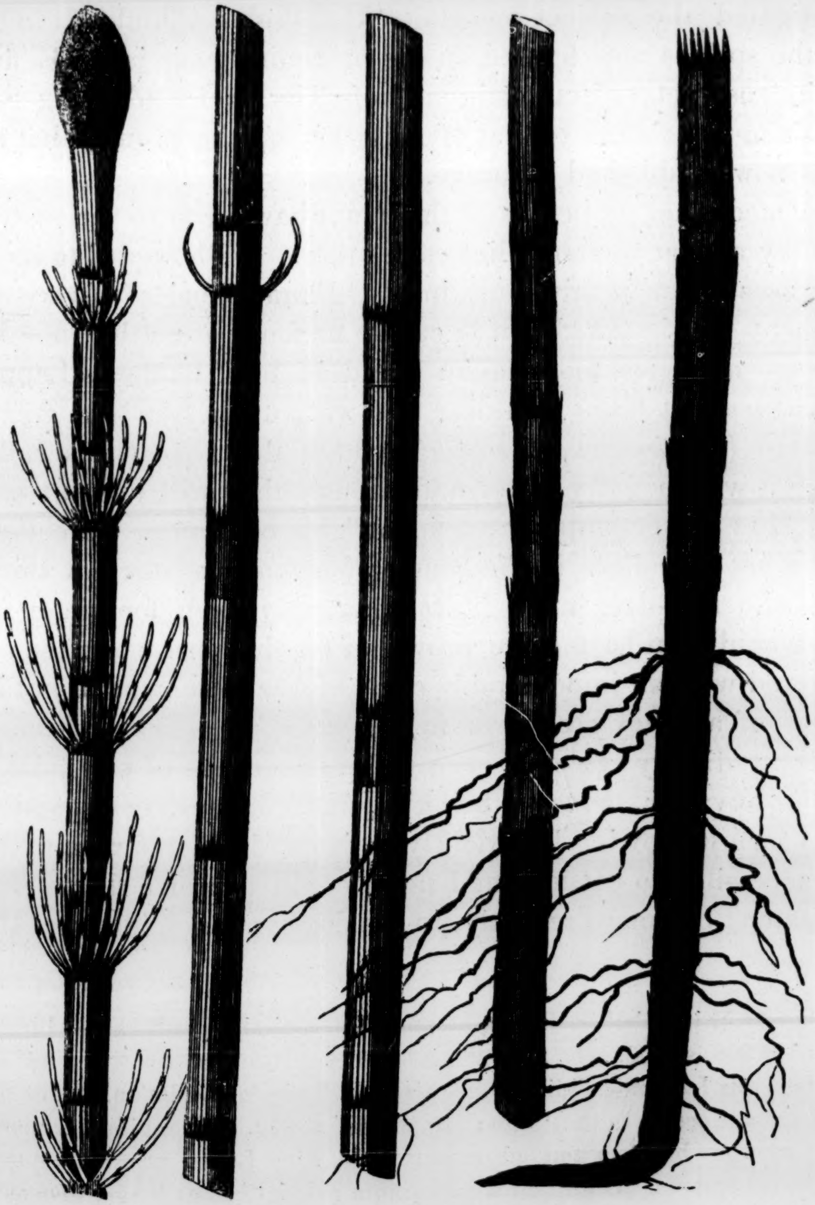
THE PHYTOLOGIST.

Art. CLXI.—*A History of the British Equiseta.* By E. Newman.

(Continued from p. 630).



WATER EQUISETUM.

Equisetum fluviatile, *Linneus.*

Equisetum limosum, Smith, Hooker, Babington.

THIS species is by far too generally distributed to allow of my giving a list of habitats: it occurs very commonly in ponds and ditches, and occasionally in running streams, the roots and a portion of the stem being immersed in water.

Concerning the nomenclature of this plant Sir J. E. Smith has led us into an error, which, in a late number of 'The Phytologist,' I took some trouble to point out; and although I believe no one who has investigated the subject entertains the slightest doubt as to the fact that the species now figured on the preceding page is the E. fluviatile of Linneus, yet several eminent botanists prefer adopting Sir J. E. Smith's nomenclature to that of Linneus, on the ground that the former is now established by usage.

The medicinal properties of this plant have been so variously stated that they appear to contradict each other. With regard to its economical uses Linneus gives us, in his 'Flora Suecica,' a very definite statement that in Sweden it is cut up as food for cattle, in order that the cows may give more milk;* and in his 'Lachesis Lapponica' he abserves that "the rein-deer feed with avidity on the great water horse-tail (*Equisetum fluviatile*), which the Laplanders call *Aske*, though it was in a dry state, and though they will not eat common hay. How unaccountably negligent" he continues, "are the Laplanders not to collect in the course of summer a stock of this plant, and of the rein-deer moss (*Lichen rangiferinus*), for winter fodder! They would then have some provision for the herd when the country is covered with an impenetrable crust of frozen snow, and not hazard the loss of all they are worth in the world."† There seems to be very contradictory evidence even within the range of our more immediate observation, as to its being eaten by horses, cows and sheep. I have seen it growing luxuriantly in ponds in Herefordshire, in situations accessible to cattle, but I never could perceive that a stem had been eaten; but more recently, in the ditches which intersect the rich pasture land in the Isle of Dogs, I observed that nearly every stem within reach from the bank had been cropped at a nearly uniform height: horses, horned cattle and sheep, are constantly feeding in these meadows.

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* Dissecatur in pabulum Boum, ut vaccæ lac copiosius præbeant. — Linn. 'Flora Suecica,' p. 368, n. 390.

† 'Lachesis Lapponica," ii. 108, of Sir J. E. Smith's translation. The following parallel passage occurs in the 'Flora Lapponica,' p. 322. Rangiferi, Lapponum pecora, fœnum per hyemem non adsumunt facile, hinc Lappo noctes diesque eos per sylvas ducere tenetur. Obtuli circa autumnum redeuntibus ex longo itenere Rangiferis fasciculum fœni, et observavi eos hanc plantam seligere et adsumere, reliqua fere intacta relinquere. Annon itaque hocce Equisetum majorem œconomiæ lapponicæ usum adferre posset, incolis udicandum relinquo.

The roots of the water Equisetum are numerous, black, fibrous and sinuous: they spring from the bases of the submerged sheaths in a manner precisely similar to that of the branches, and those which originate near the surface of the water not unfrequently ascend for a time in the same way. The rhizoma is creeping, and extends horizontally in every direction, forming a matted mass in the mud of ponds and ditches where the plant occurs: it is of a brown colour, with jet black sheaths, which are rather more approximate than in ascending stems, but in other respects scarcely different. In winter, when the exposed portion of the stem of the preceding year is dead, the remaining portion becomes prostrate on the mud, still however retaining some of those lower branches which may be seen in the summer in a state of incipient development: these, together with others in a still younger state, form the ascending stems of the ensuing year.

The engraving at page 689 represents a moderately sized stem of the water Equisetum, of its natural size and proportions: a much larger might have been selected, but its representation would have been more difficult. The stem is perfectly erect, and about twenty-five inches in height, of which seventeen inches were above water and the remainder submerged. The submerged portion is smooth, the apical portion slightly striated (the striæ are much more distinct in immature and barren stems); its average diameter is a quarter of an inch: it is divided by transverse septa into thirty compartments, thirteen of which were above, and the remainder below the surface of the water: the internodes above water vary from three quarters of an inch to an inch and three quarters in length; those submerged are very obviously shorter. The sheaths are about a quarter of an inch in length; they are green, concolorous with the stem, and of nearly equal diameter, so that they clasp it very tightly: the teeth are sixteen to twenty in number, sharp-pointed, always distinctly separated, black or dark brown, and not unfrequently furnished with a very slender white membranous edge. There are six whorls of ascending branches: these rise from the base of the sheaths from the second to the seventh internode inclusive. The branches in each whorl vary from five to seventeen in number: they are divided into joints, varying from five to ten in number, and have from five to eight striæ with corresponding ridges, which terminate in sheaths having the same number of brown-tipped teeth: the internodes of these branches are extremely variable in length, the first and last being the shortest: the branches also vary greatly in length.

The catkin is short, ovate, gibbous and terminal; and the stalk on which it stands is short, scarcely exceeding in length the sheath which encloses it. I can discover no apiculus, the extreme summit being composed of scales similar to the rest: these are generally more than a hundred in number; exteriorly they are quite black, but as they separate about Midsummer, by the ripening of the catkin, a common receptacle of ivory whiteness is disclosed.

This species is extremely subject to variation, so much so that the preceding description will only suffice to give a general idea of a fertile stem. Some are entirely unbranched, others sparingly branched, and others again more numerously branched: the site of the branches also varies, commencing variously at the second, third, fourth, fifth, sixth or seventh sheath, and forming two, three, four, five, six, seven or eight whorls. When quite unbranched, whether fertile or barren, I have no doubt that it is the 'Equisetum nudum lævius nostras' of Ray,* the habitat, figure, &c., closely corresponding; this form is also the E. limosum of Linneus, who, in his 'Systema Vegetabilium,' quotes Ray's description and figure; but it should also be observed that subsequently, in his 'Flora Lapponica,' he omits all notice whatever of this unbranched form, evidently not considering it worthy of a place even as a variety. The fertile stem occasionally becomes proliferous, as in the preceding species, but much more rarely. Mr. Luxford possesses a specimen of this kind, found in a mill-pool, by the Bristol-road, Birmingham; and in Sir J. E. Smith's herbarium is a Swiss specimen from Mr. Davall, as recorded in the 'English Flora,'† where the author remarks that he has seen no such variety in England.

The barren stem is much longer than the fertile, and varies in an infinity of ways: among a few which I have lately gathered in the ditches of the Isle of Dogs, where this plant abounds, but can scarcely be said to flourish, I select the following as instances of variation.

A—is forty-three inches in length, and has thirty-seven joints, without a single branch.

B—is forty-five inches in length, and has forty joints: from the first to the nineteenth inclusive these are branchless, the twentieth has one branch, the twenty-first two branches, the twenty-second two, and the twenty-third to the fortieth inclusive one branch each.

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* Synopsis, 131, tab. 5, fig. 2, a, b.

† English Flora, iv. 326.

C—is forty-five inches in length, and has forty joints: these, from the first to the fifteenth inclusive, are branchless, the sixteenth has one branch, the seventeenth has two branches, the eighteenth has thirteen, the nineteenth eleven, the twentieth nine, the twenty-first nine, the twenty-second ten, the twenty-third ten, the twenty-fourth seven, the twenty-fifth eight, the twenty-sixth two, the twenty-seventh two, the twenty-eighth two, the twenty-ninth one, the thirtieth three, the thirty-first none, the thirty-second two, the thirty-third none, the thirty-fourth one, the thirty-fifth and thirty-sixth none, the thirty-seventh two, the thirty-eighth two, and the thirty-ninth and fortieth none.

D—is forty inches in length, and has thirty joints: from the first to the sixteenth inclusive, and also the eighteenth, twenty-fourth, twenty-seventh, twenty-ninth, thirty-first, thirty-third, thirty-fifth, thirty-sixth and thirty-eighth are branchless; the seventeenth, nineteenth, twenty-first, twenty-third, twenty-fifth, twenty-sixth, twenty-eighth, thirtieth, thirty-second, thirty-fourth and thirty-seventh, have one branch each, the twentieth has two branches, and the twenty-second three branches.

It should also be observed that stems, which at first are perfectly unbranched, often throw out a few scattered branches as the season advances, so that it is almost impossible to lay down any formula of branching that shall be at all constant.

In barren stems the apical joints appear to be invariably branchless and very much attenuated, while the median and lower joints are generally more or less branched: the inferior branches, especially when their insertion is submerged, are much stouter than the superior ones, and are often furnished with whorls of branches, like the main stems.

THE WOOD EQUISETUM.

Equisetum sylvaticum, *Linneus*.

This plant, although local, is very widely distributed, occurring in moist shady woods throughout the kingdom. In the vicinity of London it grows in several woods in the Hampstead and Highgate district: at the latter place it was observed as long since as the time of Lobel, who records the habitat in his 'Illustrationes Stirpium,'* published in 1655, disguising the English appellation of 'Highgate,' under the scientific term of '*Altæ Portæ*.' The other English habitats with which I have been furnished through the kindness of correspondents are so numerous that a mere list of them would exceed the space

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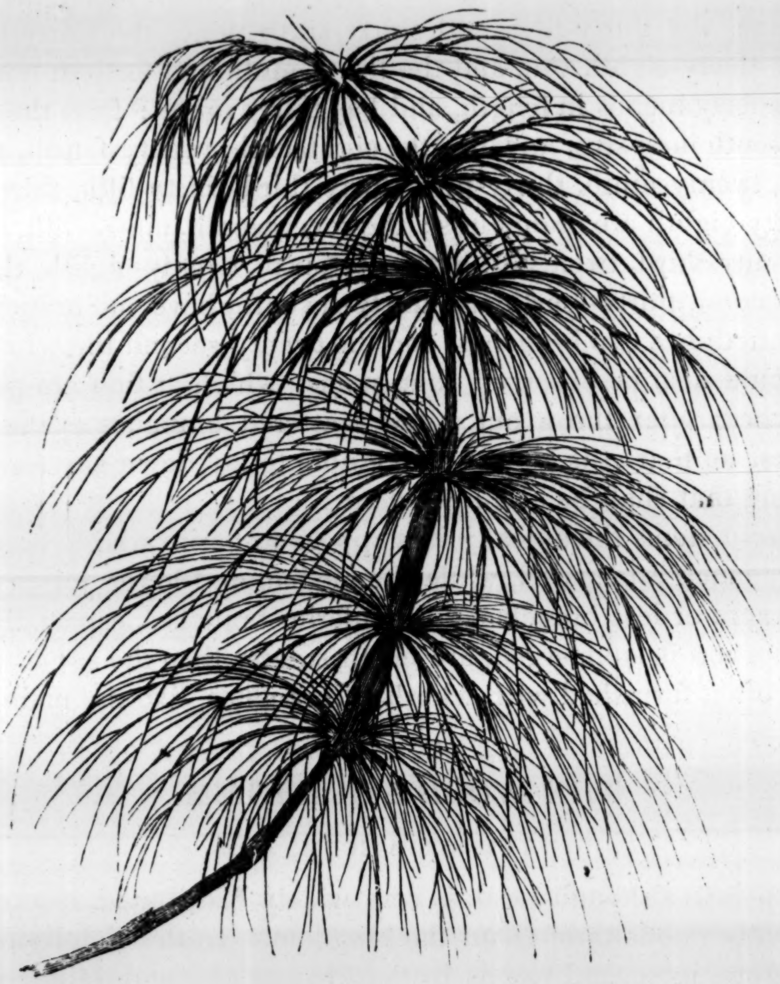
* Illus. Stirp. 149.

I can afford for localities. In Scotland I observed it growing with peculiar luxuriance in the vicinity of Loch Fyne, in a little fir-wood on a hill side. The fructification had entirely disappeared, and each stem had attained its full development, and every pendulous branch its full length and elegance. Altogether I could have fancied it a magic scene, created by the fairies for their especial use and pleasure, and sacred to the solemnization of their moon-lit revels. It was a forest in miniature, and a forest of surpassing beauty. It is impossible to give any adequate idea of such a scene, either by language or illustration. In Wales it occurs at Hafod and near the Devil's Bridge, in deep shaded ravines, occasionally straggling into open and exposed places, but then partially divested of its characteristic elegance.



Equisetum sylvaticum, (barren stem).

The figures of this plant are for the most part characteristic, although some of the older ones might have been more satisfactory. It is so distinct in its appearance and characters that one can hardly fail of recognizing it if drawn with even a moderate degree of accuracy. For the same reason all authors appear to agree in its name, and we thus escape the trouble of investigating a confused synonymy.

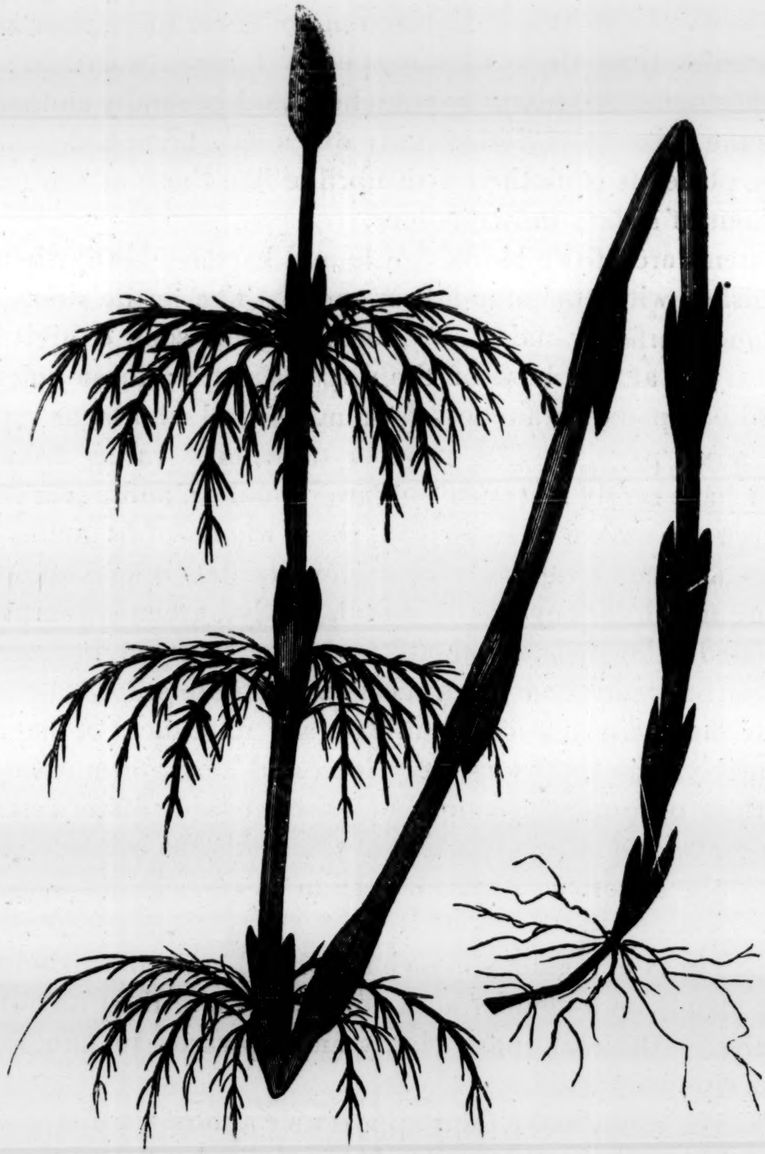
The roots of the Wood Equisetum are fewer in number and somewhat smaller than those of the species I have described: they are brown, tortuous, occasionally branched, and generally clothed with fibrillæ: the rhizoma is horizontally extended, branched and striated; in many places it is clothed with fibrillæ like those of the roots: it is throughout of a dark brown colour.

The stems are of two kinds, fertile and barren: both, when mature, are furnished with compound branches. The fertile stems rise from the ground perfectly naked, but most of them soon exhibit incipient branches just at the base of the upper sheaths; these quickly elongate into compound branches, forming several whorls, as represented on the next page. The number of whorls varies from two to eight; I have rarely met with the latter number, and never with more. Long after the catkin has decayed, these whorls of branches continue vigorous, and combine in giving a blunt or flat-topped appearance to the entire frond. They are of a dull, sickly, green colour, succulent and striated: the striæ are about twelve or fourteen in number, and the ridges between them are armed with minute siliceous points, but these are insufficient to communicate any roughness or harshness to the plant. The sheaths are very long and loose, terminating superiorly in three or four large conical lobes, containing on an average three striæ in each; the inferior portion of these sheaths is concolorous with the stem, the superior or apical portion is of a bright russet brown colour.

The catkin is elongate, somewhat pointed, and of a pale brown colour; it stands on a slender stalk, of rather more than its own length. The scales of the catkin are eighty and upwards in number. The catkin is ripe in April.

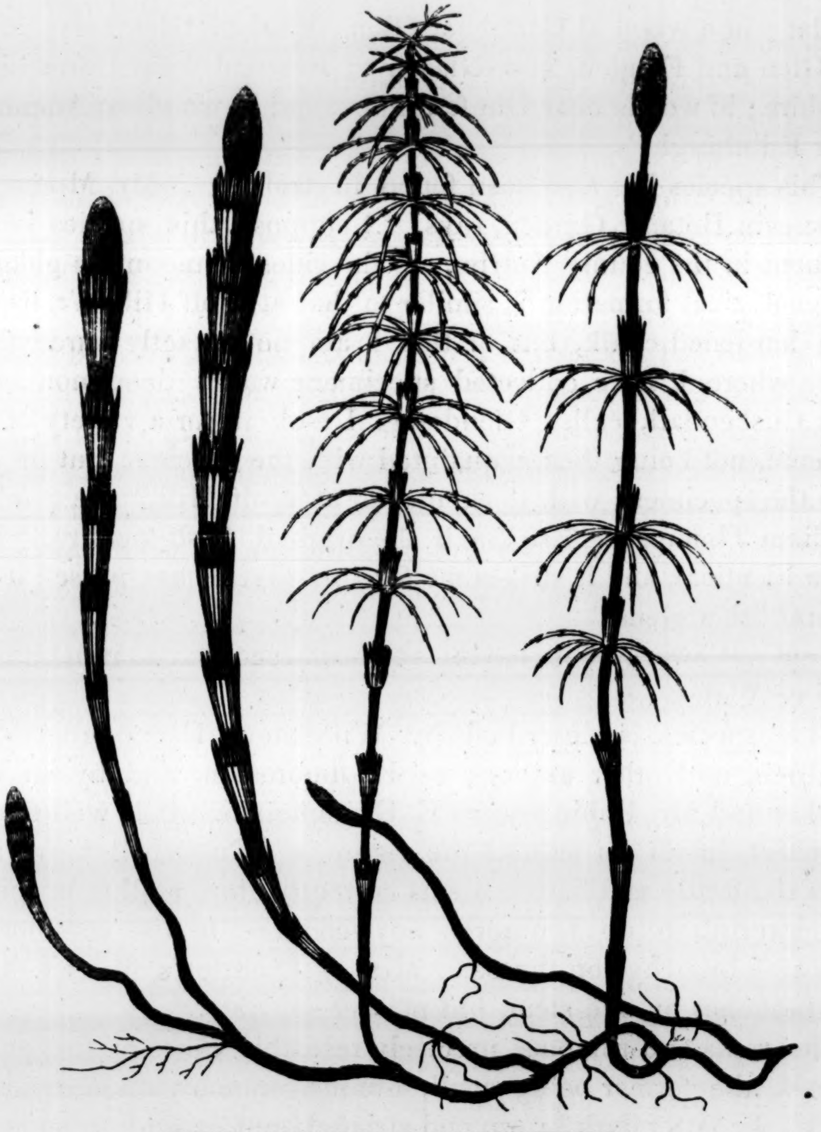
The barren stems make their appearance almost simultaneously with the fertile ones, but are more slender, and the sheaths are much smaller, although similarly formed and coloured. The whorls of branches are from ten to twenty in number, and the branches composing each whorl gradually decrease in number and length towards the apex, which is extremely slender, so much so, that unable to bear its own weight, it droops on one side, and is not readily to be distinguished from the surrounding branches. The striæ are more distinct than in the fertile stem; three or four of the ridges run into each of the lobes of the sheaths, and unite in its apex.

The branches are very slender, long, and drooping; they are commonly divided into twelve or fourteen joints, of which the first and last are the shortest, and the second, third and fourth the longest, and emit from near their extremities other slender, long, and drooping branches. This second series of branches is of no uncommon occurrence in Equisetum Telmateja and E. arvense, but in these species it



Equisetum sylvaticum (fertile stem).

may be regarded as casual, while in the present it is a constant character of the plant. The ultimate branches are generally triangular, each joint terminating in three long pointed teeth.



THE SHADY EQUISETUM.

Equisetum umbrosum, ***Willdenow.***

Equisetum Drummondii, **Hooker.**

"For this addition to the [British] species of Equisetum we are indebted to Mr. Thomas Drummond, who found it on the banks of the Isla and Esk, in Forfarshire, extending up the valleys almost to the sources of those rivers."* Dr. Greville, who has obligingly supplied me with specimens, has since discovered it in woods near Forfar; and Dr. Balfour, to whom I am also indebted for specimens, has supplied me with the following list of Scotch localities:—"Woodcockdale wood, near Linlithgow; in woods at Castle Campbell, near Dollar; in a wood at Carlochar Glen; head of Glen Isla; in Campsie Glen and Finglen, near Glasgow; in woods near Corra Lin, Lanarkshire; in woods near Dunfermline; and in woods at Auchindenny, near Edinburgh."

This species has also been found in Ireland. Mr. Moore, of the Glasnevin Botanic Garden, says, "I suppose this species is not unfrequent in the county Antrim, on the sides of mountain glens where the geological formation is similar to that at Wolf Hill, *viz.* lias mixed with hardened chalk, but of this I am not exactly sure: the only place where I have collected specimens was a deep mountain glen near Cushendall, called Glendoon: I took it for a variety of E. sylvaticum, not being then acquainted with the species; but on comparing the specimens with those picked at Wolf Hill," the residence of William Thompson, Esq., and the original Irish locality, "I found them identical, and it strikes me forcibly that I have passed it over in several other glens."

I am not aware of its having yet been recorded as inhabiting England or Wales.

This species is described by Willdenow, Decandolle, Vaucher, Diedrich, and other authors, as E. umbrosum, and by Sir William Hooker and Mr. Babington as E. Drummondii. It is well figured by Vaucher† in all its states; the figure in 'English Botany' ‡ represents the fertile and barren stems correctly, but neither in the figure nor description do I observe any reference to the combination of fruit and branches on the same stem. Diedrich's figure § has fruit and branches on one stem, but neither separate.

The roots and rhizoma precisely resemble those of the preceding species, the former being small, fibrous, sinuous, often divided, and black; the latter dark brown and striated, and extending horizontally.

The stems are of three kinds—*first*, bearing fructification only; *secondly*, bearing fructification and branches; and *thirdly*, bearing branches only. The fertile stems are four to six inches in height, slightly striated when living, more evidently so when dried; they are of a pale whitish-green colour: the sheaths are very large and loose, and nearly white, in some specimens almost of an ivory whiteness, with a brown ring at the base of the teeth, which are from fifteen to twenty in number, long, almost setiform, *very slightly* flexuous, pale brown, and furnished with dilated, membranous, almost transparent, whitish edges. The catkin is terminal, oval, and of a very pale brown colour; at first it appears sessile, but when mature its footstalk is very obvious: the scales are forty or fifty in number; in figure they are somewhat hexagonal, and have a conspicuous central depression, surrounded by six or seven nearly circular and slightly convex departments. The catkin is ripe in April.

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* Hooker in 'English Botany' Supp. 2777.

† Monographie des Prèles.

‡ Eng. Bot. Sup. 2777.

§ Deutcshlands Kryptogamische Gewaschse.

When the stem bears both fructification and branches, a character overlooked by British botanists in their descriptions, but one of common though not constant occurrence, the branches are disposed in whorls four to six in number, the first being placed at the base of the uppermost sheath, and the others following in succession: the sheaths are smaller than in those stems which are fertile only, and larger than in the barren stems. I am indebted to Mr. Cameron, of the Birmingham Botanic Garden, for specimens in this state, gathered while the catkin was still in perfection.

The barren differs from the exclusively fertile stem in having the sheaths much smaller and more distant; the teeth also are shorter, fewer in number, and less pointed. The barren stem is usually divided into about twenty joints, of which the four or five lower ones are branchless, but each of the others is furnished with a whorl of branches varying in number from ten to sixteen in each whorl. These branches at first are somewhat recurved and drooping, as in E. sylvaticum, but they afterwards become spreading and slightly ascending; they are simple, and composed of eight or ten joints, of which the basal one is the shortest, being a mere sheath; the second is sinuous: they are usually triangular, and the loose sheath which accompanies each joint terminates in three obtuse teeth, which have the extreme tips brown. The ridges of the stem and branches are beset with minute flinty particles, which give the plant a rougher feel than the preceding.

Sir W. J. Hooker observes—"Its nearest affinity is doubtless with E. arvense, but it is abundantly distinct. Its colour is greener and less glaucous; its stem rougher, with closely-set raised points; its angles and branches much more numerous; and the whole barren frond is singularly blunt in its outline or circumscription at the extremity, by which it may be at once known from E. arvense. The sheaths, though paler at the base, have blacker and more prominent ribs upwards, and they are so close as almost to imbricate each other. The teeth are also more numerous, when they separate into their proper number."* I quite agree with this profound botanist in considering the present species abundantly distinct from E. arvense; indeed the similarity to that plant does not appear to me particularly obvious: my idea of what would be termed "its affinities" will perhaps be sufficiently expressed by my placing it between E. sylvaticum and E. Telmateja. EDWARD NEWMAN.

(To be continued.)

ART. CLXII. — *Notes on an old volume of Coloured Impressions of Plants.* By W. G. PERRY, Esq., F.B.S.E., &c.

A CURIOUS old collection of impressions of plants, slightly coloured, lately came into my possession. Although it is roughly executed, the character of the plants is well preserved. There are about five hundred and sixty species, contained in a foolscap folio volume of 370 pages. The names appended to the plants are evidently copied from the *second* edition of Ray's Synopsis; which, from the circumstance of its being published in 1696, and the *third* edition in 1724, shows that the collection was made in the early part of the last century.

It appears from the localities named that the book belonged to some one living in the neighbourhood of Knutsford, in Cheshire. If any Cheshire botanist can afford information respecting the original owner of the volume, it would afford me considerable gratification.

I flatter myself that the following localities, transcribed (without correction of errors) from this old Cheshire herbal, may not be unacceptable to some of your readers.

Acorus Calamus, *L.* "In the moat at *Holford hall* it grows plentifully, also at *Over Tabley*, both these places lying betwixt *Knotsford* and *Northwich* in Cheshire."

Adoxa moschatellina, *L.* "In the Common Moor by *Knutsford* plentiful."

Aquilegia vulgaris, *L.* "In agro secundò ultra domum *Anson House* dictum propè *Booth-wood* ab Knutsfordiense circiter unum milliare inveni."

Asperula Cynanchica, *L.* "Juxta ambulacrum novum inter *Knutsford* et *New Tatton* provenit."

Atriplex marina, *L.* "Propè *Warrington* observabit *Mr. Robert Chetham* et ad me attulit."

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* Eng. Bot. Supp. 2777.

Botrychium Lunaria, *Sw.* "In agris magnis ubi semiter est ducens ab *Knutsford* ad *Old Tatton*, inter *the Lane* et *the Mear*, non impossibile invenire erat Anno Dom. 1747."

Chenopodium olidum, *Curt.* "In horto Josepho Nixon seniori appertinente copiosissimè provenit, et adeo ei fere pestis est."

Chlora perfoliata, *L.* "Inter *Knutsford* et *New Tatton Hall* in novâ ambulacrâ non longè a posteriori inveni."

Chrysosplenium alternifolium, *L.* "By the brook at *Chelford*."

Convallaria multiflora, *L.* "In *Lower Pever* near *Pooldam*."

Cynoglossum officinale, *L.* "In via publica apud *Chelford* ut abiis ad *Capestone*."

Digitalis purpurea, floribus albis. "Hæc in agro inter *Knutsford* et *Tatton* inveni."

Erigeron acris, *L.* "In agris magnis sterilibus inter *New Tatton Hall* et *Knutsford* non longè a priori copiosè provenit."

Geranium columbinum, *L.* "In via inter *Knutsfordiensem* et *Novum Tattonium* copiosè inveni."

Geum rivale, *L.* "Juxta rivulo *Peover High* dicto copiosè inveni."

Hypericum Androsæmum, *L.* "Near *Middlew*(* * *), and also near *Macclesfield*."

Hypericum elodes, *L.* "Inter *Rud-heath* et *Lower Peover* in loco ubi aquæ stagnant, et in ericeto Knutsfordiensis juxta lacum *Cookstool-pit* dictum sed rarius."

Hypericum pulchrum, *L.* "Juxta *New Tatton Hall* copiosè inveni, et in *Bexton Lane* multisque aliis locis propè *Knutsford*."

Inula Helenium, *L.* "Juxta locum ubi *Old Booth Hall* stabat provenit."

Lysimachia vulgaris, *L.* "Circa *Tatton Mear* copiosè provenit, et alibi circa *Knutsford*."

Mentha arvensis, *L.*? "In agro inter *Knutsford* et *Tatton* non longè a priori copiosè inveni."

Myrica Gale, *L.* "Circa *Knotsford* Cestriensis comitatu copiosè provenit."

Narthecium ossifragum, *Huds.* "Juxta scrobem inter *Old* et *New Tatton* inveni, et etiam super *Mear Heath* copiosè."

Ophioglossum vulgatum, *L.* "In horto *of Pet. Lee* inveni."

Osmunda regalis, *L.* "Juxta *Tatton Mear* propè *Knutsford* provenit."

Paris quadrifolia, *L.* "In agro primo vel 2o. ultra *Lower Peover Church* provenit sed rarior."

Petasites vulgaris, *Desf.* "About *Bollin* as you go from *Knutsford* to *Altringam*; below the old church at the side of *Booth-brook* plentifully."

Polygonum Bistorta, *L.* "Propè *Knutsford* Cestentriensis comitatu variis in locis; ut in prato infra *Anson House* propè *Boothwood* copiosè inveni; inter *Tatton* et *Rosthern* in agro non longè a priori."

Radiola Millegrana, *Sm.* "Super *Rud-heath*, *Shaw-heath*, et *Knutsford.* Juxta lacum *Cookstool-pit* dictum copiosè inveni."

Saxifraga granulata, *L.* "In rivulo *Booth-brook* dicto."

Saxifraga Hirculus, *L.* "Found by my very good friend Dr. Kingstone on *Knotsford Moor*, and there shewed to Dr. Richardson by him; now growing in plenty."

Solidago Virgaurea, *L.* "Circa *New Tatton Hall* variis in locis observavi."

Spergula nodosa, *L.* "In the common moor by *Knotsford*."

Taraxacum officinale, γ. *lævigatum*, Bab.? "In colle *Adamp*(***)*ill* dicto propè *Knutsford* inveni."

Tragopogon minor, *Fries.* "In prato magno in sinistrum semitæ ut abiis ab *Toft Hall* ad *Lower Peover* non longè a priori provenit."

Triglochin maritimum, *L.* " Propè *Warrington* observavit et ad me attulit *Mr. Robertus Chetham.*"

Vaccinium Oxycoccos, *L.* " In Cheshire vulgo *Cramberries.*"

Vaccinium Vitis-Idæa, *L.* " Super *Mear Heath* propè *Knotsford* inveni copiosè."

Viola palustris, *L.* " In *Knotsfordiensis* palude com. inveni variis in locis."

W. G. Perry.

Warwick, July 17, 1843.

Art. CLXIII. — *List of the Cryptogamic Plants of Oxfordshire.*

By Ph. B. Ayres, Esq., M.D.

(Continued from page 664).

Marchantia polymorpha. Moist shady places, common, *Baxter.*

———— *conica.* Shotover plantations, *Baxter.*

Jungermannia setacea. Shotover hill, *Baxter.*

———— *asplenioides.* Shotover plantations, Bagley wood, *Baxter;* Stokenchurch hill, *Dr. Ayres.*

———— *Sphagni.* Shotover hill, *Purton.*

———— *crenulata.* North side of Shotover hill, *Baxter.*

———— *bicuspidata.* Moist places, *Baxter.*

———— *connivens.* North side of Shotover hill, *Baxter.*

———— *incisa.* Shotover hill, *Purton.*

———— *pusilla.* Bagley wood, rare, *Baxter.*

———— *nemorosa.* Shotover hill, *Purton.*

———— *albicans.* North side of Shotover hill, *Baxter.*

———— *complanata.* Trees, very common.

———— *polyanthos.* Shotover hill, *Baxter.*

———— *viticulosa.* Shotover hill, *Sibthorp.*

———— *bidentata.* Damp places, common.

Jungermannia platyphylla. Old walls &c. common, *Baxter;* trunks of trees, Stokenchurch woods, *Dr. Ayres.*

———— *dilatata.* Trunks of trees, common.

———— *Tamarisci.* Headington quarry, *Baxter.*

———— *pinguis.* Shotover hill, *Baxter.*

———— *multifida.* Shotover hill, *Baxter.*

———— *Blasia.* North side of Shotover hill, *Baxter.*

———— *epiphylla.* Shotover hill, Bagley wood, *Baxter;* Thame and Stokenchurch woods, *Dr. Ayres.*

———— *furcata.* Shotover hill, Bagley wood, *Baxter.*

Riccia crystallina, β. glauca, Hook. Old gravel pits, St. Clement's, and bogs on Bullington green, rare, *Baxter.*

Anthoceros punctatus. North side of Shotover hill, *Baxter.*

Bæomyces roseus. Bagley wood, *Baxter.*

———— *rufus.* Shotover hill, *Baxter.*

Calicium tympanellum. Bagley wood &c. *Baxter.*

———— *sphærocephalum.* Bagley wood &c., *Baxter;* Thame, *Dr. Ayres.*

———— *aciculare* (E. B. 2053). Bagley wood &c., *Baxter.*

———— *debile.* Bagley wood &c., *Baxter.*

Calicium peronellum. Near South Hinksey, *Baxter.*

Arthonia astroidea (E. B. 1847.) Smooth bark, common, *Baxter.*

Opegrapha varia. Bark of old trees, *Baxter.*

——— *epipasta, β. microscopica,* Ach. On young oaks, *Baxter.*

——— *rufescens.* On ash trees, Bagley wood, *Baxter.*

——— *atra.* Trunks of trees, *Baxter.*

——— *scripta.* Ditto.

——— *dendritica.* Trunks and branches of trees, *Baxter.*

——— *elegans.* On holly bark, Bagley wood, Shotover plantations, *Baxter ;* Penleigh Hollies, *Dr. Ayres.*

Verrucaria epidermidis. On birch trees, Christ Church meadow, *Baxter.*

——— ——— *β. analepta,* Ach. In the same locality, *Baxter.*

——— *cinerea.* Smooth bark of trees, Bagley wood, Magdalen College copse, *Baxter.*

——— *nitida.* Ash trees, Bagley wood, *Baxter.*

——— *nigrescens.* Walls &c. common, *Baxter.*

——— *rupestris.* On stones, Shotover hill, Bagley wood, *Baxter.*

——— *biformis.* On old willows near Childswell, *Baxter.*

Endocarpon miniatum. Headington quarry, very rare, *Baxter.*

Pertusaria communis. Bark of trees, com.

——— *fallax.* Bark of trees, *Baxter.*

Thelotrema lepadinum. On holly and oak, Bagley wood, *Baxter ;* Penleigh Hollies, *Dr. Ayres.*

Lepraria flava. Bagley wood &c., *Baxter.*

——— *viridis.* Common everywhere.

——— *alba.* Trunks of trees, &c., *Dr. Ayres.*

Spiloma gregarium. Trunks of trees, common, *Baxter.*

——— *murale.* Walls, Bullington green, *Baxter.*

Variolaria faginea. Trunks of trees &c. common.

——— *discoidea.* Trunks of trees &c. common.

Urceolaria scruposa. Old walls and stones, *Baxter.*

——— *calcarea.* Ditto.

——— *cinerea.* Ditto.

Lecidea atro-alba. On stones &c., *Baxter.*

——— *fusco-atra.* Ditto.

——— *lapicida.* Stones, Shotover hill, *Baxter.*

——— *confluens.* Ditto.

——— *parasema.* Bark of trees, &c. common.

——— *immersa.* Stones and rocks, *Ba.*

——— *quernea.* Trunks of trees, *Ba.*

——— *viridescens.* Moss, stones, &c. *Baxter.*

——— *incana.* Trunks of trees, *Baxter.*

——— *rupestris.* Walls and stones, Shotover hill, Cheney lane, *Baxter.*

——— *vernalis.* Trunks of trees, *Baxter.*

——— *icmadophila.* Shotover hill, *Ba.*

——— *marmorea.* Ditto.

——— *ulmicola.* Stones and trees near Shotover hill, very rare, *Baxter ;* Rycot's park, *Dr. Ayres.*

Lecanora atra. Trees and tiles, *Baxter.*

——— *subfusca.* Common on bark.

——— *Parella.* Stokenchurch, on trees and stones, rare, *Baxter.*

——— *Turneri.* Bagley wood, very rare, *Baxter.*

——— *cerina.* Trees, rare, *Baxter.*

——— *vitellina.* Trees and old rails, common, *Baxter.*

——— *Hæmatomma.* Trees, Bagley wood, very rare, *Baxter.*

——— *crenulata.* Walls and stones, Cheney lane, *Baxter.*

Psora cæruleo-nigrescens. Headington quarry, very rare, *Baxter.*

——— *decipiens.* Ditto.

Squamaria saxicola. Walls & stones, *Ba.*

——— *circinata.* Walls of Botanic Garden, bridge on the Botley road, *Baxter.*

Squamaria candelaria. On trees, *Baxter*.

—— —— *β. polycarpa*, Hook. Trees, Christ Church meadow, *Baxter*.

Placodium canescens. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.

Parmelia virella. Trunks of trees, common, *Baxter*.

—— *caperata*. Trunks of trees, not uncommon, *Dr. Ayres*.

—— *perlata*. Trunks and branches of trees, common; rare in fruit.

—— *olivacea*. On trees, &c., particularly on dead fences and posts, *Dr. Ayres*.

—— *parietina*. Everywhere.

—— *pityrea*. Trunks of trees, *Baxter*.

—— *saxatilis*. Trees, common, *Baxter*.

—— *pulverulenta*. Trees and shrubs, common.

—— *stellaris*. Trees and shrubs, rare, *Baxter*.

Sticta pulmonaria. Bagley wood, very rare, *Baxter*: Stokenchurch woods, not uncommon, *Dr. Ayres*.

Collema nigrum. On stones, Bullington green, *Baxter*.

—— *crispum*. On old walls, *Baxter*.

—— *fasciculare*. Walks of the Botanic Garden, Oxford, *Baxter*.

—— *palmatum*. On the ground, *Baxter*.

—— *granulatum*. Old walks, *Baxter*.

—— *nigrescens*. Trunks of old trees, *Baxter*; on willows, Thame, *Dr. Ayres*.

—— *lacerum*. On the ground among moss, *Baxter*.

Solorina saccata. Headington quarry, very rare, *Baxter*.

Peltidea canina. Heaths, woods, &c., *Baxter*.

—— *rufescens*. Heaths, woods, &c., *Baxter*.

Nephroma resupinata. Bagley wood, exceedingly rare, *Baxter*.

Borrera tenella. On almost every tree and shrub.

—— *ciliaris*. Trunks of trees, *Baxter*; Thame, *Dr. Ayres*.

Evernia prunastri. Trunks of trees, common.

Ramalina fraxinea. Trees, common.

—— *fastigiata*. Trees, common.

—— *farinacea*. Trees, common, but rare in fruit.

Usnea plicata, *β. hirta*, Ach. Trees and bushes in woods, Bagley wood, *Baxter*.

—— *barbata*, *β. articulata*, Ach. Bagley wood, very rare, *Baxter*.

Cornicularia aculeata. Shotover hill, *Baxter*.

Cladonia furcata. Shotover hill, Bagley wood, *Baxter*.

—— *rangiferina*. Shotover hill, Bagley wood, *Baxter*; Thame and Stokenchurch hills, *Dr. Ayres*.

—— *pungens*. Shotover hill, Bagley wood, *Baxter*.

Scyphophorus alcicornis. Heaths, rare, *Baxter*.

—— *pyxidatus*. Woods, &c., common.

—— *fimbriatus*. Heaths, &c., *Baxter*.

—— *radiatus*. Heaths & woods, *Baxter*.

—— *cocciferus*. Bagley wood, rare, *Baxter*; on a stump near the road from Stokenchurch to Cadmore End, rare, *Dr. Ayres*.

(To be continued).

B. Ayres.

Art. CLXIV.—*Notice of 'The Botany of the Malvern Hills, in the Counties of Worcester, Hereford, and Gloucester; with the Precise Stations of the Rarer Plants, and Introductory Observations on the General Features, Geology, and Natural History of the District.* By Edwin Lees, F.L.S., &c. &c. London: Tilt and Bogue, Fleet Street; and H. Lamb, Malvern. 1843.

Mr. Lees has been so long and so well known as an ardent botanical explorer, as well as for his persevering efforts to popularize his favourite science, that to our readers any other introduction than the mere mention of his name would be quite superfluous. 'The Botany of the Malvern Hills,' as may be learned from its title, is strictly a local Flora of that rich district, and presents a record of the harvest yielded to the author's personal researches during a residence of several years in the neighbourhood. The following passage will explain the pains taken to render this as correct and complete as possible.

> "Although the present work is scarcely more than a catalogue, it has taken the labour of years to survey and resurvey the ground minutely, and a multitude of studious hours have been spent in determining the less obvious and dubious plants. I think therefore, I may safely say, that there is no mistake in the Phanerogamous productions, most of which have again and again passed under my review, and I have excluded several species because evidently introduced, my object being to show the really indigenous Flora of the hills. It is true I have admitted a few agrarians, but these are perhaps as old as the introduction of corn, and therefore not undeserving attention. All the plants are to be understood as having been *gathered by myself*, except in the few instances where I rely upon the authority of friends who have sent me specimens.
>
> "The Cryptogamic productions of the hills are so varied and curious, that I have taken especial note of them, and I much regret that the limits necessarily assigned to the present publication, have precluded my entering into the details respecting them I desired to do. I can hardly assert that in this intricate department I have been in every case correct in my designations, but I have consulted all the aids in my power. I have deposited specimens of all, or nearly all, the plants I gathered in the herbarium of the Botanical Society of London, so that botanists may easily refer to any of them, in case a doubt should arise to render it necessary."—*Preface, p.* vii.

The full reports of a paper by Mr. Lees* on the Botany of this district, which have already appeared in our pages, render it unnecessary for us to follow the author through his "Introductory Remarks;" we must, however, give the following extract.

> "A good relieving artistical feature is given to the hills at all times by the fallen stones in the ravines, for though these are shapeless enough close at hand, and with

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* Read before the Botanical Society of London: see Phytol. pp. 152, 206, & 268.

small pretensions to beauty, yet in the distance they assume a deep purple hue, which contrasts well with, and breaks the uniformity of the green turf. In the summer, the immense quantities of foxglove give a rich pink hue to the rocky slopes they cover, often mixed with the tall golden torches of the great mullein; while in other spots a purple mantle is created by the flowering of the wild thyme. As autumn slowly approaches, the gorsy patches sparkle most refulgently, though their golden splendour is somewhat chastened by the burnt umber of the withered brakes extending far and wide, and scorched by the blaze of August. In May, the hawthorns and mountain ashes wave on the sides of many of the ravines in milk-white purity, while in autumn their pendant coral berries give another phase of beauty to the inspiring and diversified scene."—p. 3.

We observe from the Enumeration given by Mr. Lees, that since his paper was read before the Botanical Society, he has added to the Malvern list 34 species of flowering plants and 112 species of Cryptogamia, thus raising the entire number from 1438 to 1584.

The plants are distributed in the three grand divisions of Exogens, Endogens and Acrogens; and under each of these primary divisions they are arranged according to the Linnæan system, of which Mr. Lees has always been the champion. We are also glad to see that the artificial system of the illustrious Swede is not without advocates among others who hold high rank in the science of Botany; and that there are still some left, who would regret to see that system consigned to unmerited oblivion, because it has not effected what it was never intended for, and consequently what we had no right to expect from it. Let it not be supposed that we are advocating the Linnæan system in consequence of being so prejudiced in its favour as to be blind to the merits and the excellences of other methods—this would be falling into the very error we are deprecating; we only ask for fair play—we claim for the Linnæan system a fair and unprejudiced examination, conducted in a spirit of candour, and with an especial reference to the end proposed by Linnæus in framing it, not forgetting that we are most undoubtedly indebted for the present advanced state of botanical knowledge, to the invention and operation of this system at a period when hardly any other means would have answered the same end. This examination we claim for the Linnæan system; for we cannot help suspecting that perhaps nine-tenths of those who so loudly and so clamorously decry it, are entirely ignorant both of the system itself, of its practical working, and of the debt of gratitude due to its illustrious author, from the present and all succeeding generations of botanists. A passage on this subject from the pen of Mr. Babington has already graced our pages, (Phytol. 642); and we think we could not select a fitter place than this, for giving an extract on the same subject, from Professor Forbes's admirable 'Inaugural Lecture on Botany.'[*]

"The history of Botany, from the time it first assumed a scientific character to its palmy state in the present century, is more instructive than that of any of the other Natural-history sciences, though later in its development; for among the ancients, its most eminent votaries, Theophrastus and Dioscorides, were rather herborists than botanists, and originated no grand generalizations like those which gave the first impulse to zoological science, nursed by the giant mind and indefatigable research of Aristotle. But though Zoology started with the speed of the hare, Botany, like the slow tortoise, at length overtook it in the race, and the heavy volumes of Bauhin, Gerarde and Cæsalpinus, were all so many steps on the way. It first quickened its speed as a science of observation. Ardent naturalists went forth into foreign climes, and collected their vegetable products with indefatigable industry, noting carefully their living forms and hues. Others, tied down by the trammels of home-occupation, gathered the plants of their native countries and recorded their variations. Confused ideas of natural affinities clouded their early arrangements, but from the material so accumulated truer notions were in time generated. The good and kind-hearted, rather than the strong-minded, were the first votaries of the science. The gentleness of the pursuit was adapted to the kindliness of their natures. Their earnest unbiassed studies, originating in the admiration of the wonders and beauties of creation, and deep reverence for the great Origin of all things, were the corner-stones of botanical science, and on such a sound and firm foundation the superstructure could not fail to be nobly and speedily raised. In time the building was commenced; Ray, Tournefort, and a host of lovers of nature laid the first stones. Linnæus and Jussieu were the chosen architects.

"The great Swede, whose many-sided mind made all the science of his time contribute to his grand purpose of developing the system of Nature, saw at a glance, that though there was much material collected, more must be continually gathering, and that to make good and rapid use of what had been drawn together, machinery was wanting.

"'Instrumentis et auxiliis res perficietur: quibus opus est nihilominus ad intellectum quam ad manum.'[†]

"Linnæus invented the required instruments and aids. Whilst he taught that the grand aim of Botany should be the discovery of the true arrangement of plants in Nature, and boldly sketched his idea of what he conceived that arrangement would prove to be, — in order that such great end might be the more speedily attained, he devised two ingenious artificial schemes, which, as he foresaw, led to the desired results. These were the binomial nomenclature, and the classification of plants according to the number or arrangement of their sexual organs.

"The first of these inventions, the simplicity of which is that characteristic of all the creations of genius, became the greatest means of furthering the progress of Natural History. It was endowing it with a universal language, in which all its followers might converse with perfect mutual understanding. The distinctions of nation and tongue were abolished by this admirable scheme, the universal and simultaneous adoption of which at once proclaimed its own excellence and that of its author.

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[*] An Inaugural Lecture on Botany, considered as a Science, and as a Branch of Medical Education. Read in King's College, London, May 8th, 1843. By Edward Forbes, F.L.S., F.B.S.E., &c. &c., Professor of Botany in King's College, London. London: John Van Voorst, 1, Paternoster Row; B. Fellowes, Ludgate St.

[†] Bacon, Nov. Org. lib. i. aph. 1.

"The second was, as it were, the making of an index to a great section of the book of Nature. Those who slightingly think of the Linnæan system, as it is termed, forget in the present to look back fully and fairly on the past. They should remind themselves of the state in which Botany was when Linnæus undertook to make its treasures consultable. The understanding of things depends greatly on the perception of their order and relations. When that order and those relations require deep study ere we can comprehend them clearly, the man who gives us a clew, however insignificant it may be in its own nature, is not only conferring on us an invaluable benefit, but endowing the despised instrument with golden value. Such a clew did Linnæus give when he put forth the sexual system. The scientific systematist, surrounded by the stores of his herbarium, should not forget that those treasures were often amassed in the first instance by adventurous and earnest men, rendering good service by their hands and energy, as good in its humble way as that which he gives by his head and philosophy. It was not to be expected of such men that in the field they should occupy themselves with thoughts of arrangement or affinity; their part was to observe and select, and the guide to their observation and selection was no other than the Linnæan system. In the scientific hive as in the apiary, there must be working-bees and neuters as well as queens and drones: it is necessary for the economy of the commonwealth. An easy means of acquiring and arranging information is a great help to the workman of science, and no department has gained more thereby than Botany, which, through the facilities afforded by the artificial method devised by Linnæus, has had its facts amassed in enormous quantity for the use of its more philosophic votaries, and owes its present advanced state in a great measure to such humble means.

"The clew to the labyrinth, then, having served such noble purpose, becomes a consecrated object, and should rather be hung up in the temple than thrown aside with ignominy. The traveller returning from his adventurous and perillous journey of discovery, hangs up his knapsack with affection on the walls of his study. But travellers must return to the fields, if more is to be done; and so must botanists, and each must have recourse again and again to those helps which aided them so well in their earliest journeys.

"In saying these few words in favour of the Linnæan system, I know I am pleading an unpopular cause: but I speak out freely, partly because I mean to proceed on a different basis in conducting the botanical studies here, and partly because, after the once over-enthusiastic attachment to the Linnæan method which prevailed so long in Britain, and which was carried so far as to impede the progress of Botany, a reaction has taken place which threatens to blind the eyes of the younger botanists to the merits of a device which was, and ever will be, a most valuable auxiliary of the science." —p. 16.

We have with great pleasure followed the learned Professor through the above able and candid defence of the Linnæan system. This defence is doubly valuable, both as emanating from so high a quarter and as being perfectly disinterested on the part of the Professor; from these circumstances we consider the defence to derive additional importance, and to be entitled to additional respect and consideration. The time is past when the mere facility of finding out the name of a plant and referring it to its proper station in a system is to be looked upon as the sole end and aim of botanical research; but why should we not use the easiest means of acquiring the true end? The votaries of the so-called natural method are confessedly obliged to have recourse to artificial schemes, in order to determine the names and stations of the comparatively small number of species indigenous to Britain. We would by no means be understood to wish that Botany should be taught exclusively by the Linnæan method; but so long as artificial systems are required, and it seems that in Britain at least we are not yet able to do without them, we would ask, why not avail ourselves of that which is unquestionably the best of all hitherto devised? The object of all artificial systems of Botany we apprehend to be the same, namely, the enabling the student to ascertain with ease and certainty the name of any plant he may meet with; this step gained, the student is in possession of a clew which will enable him to follow out the subject in its remotest bearings. The Linnæan system, used, as its author intended it should be used, as "an index to a great section of the book of Nature," appears to us superior in the grand requisites of applicability and certainty to any other artificial scheme with which we are acquainted; and thus used, the Linnæan system, as Professor Forbes has well said, will ever be "a most useful auxiliary to the science." After thus stating the true aim and end of the Linnæan system, the Professor continues.—

"The aim of Jussieu was of a different kind. Gifted with a highly philosophic mind, he concentrated its powers mainly on one subject. His devotion produced great results. He placed the study of the natural affinities of plants on a practical basis, and originated those views afterwards more fully developed by DeCandolle and other distinguished men. The spirit of Jussieu has presided over the greatest botanical works down to the present day, and his influence is as powerful now as when he first expounded to his delighted pupils just views of the vegetable kingdom.

"The genius and doctrines of Linnæus and Jussieu having placed Botany on a sure scientific basis, hosts of labourers crowded to the field, and the enthusiastic pupils and admirers of those great men went forth observing and collecting over every discovered land. The facts they added demanded new research and modified arrangements. Still the great stage of *classification* had been attained, and the science was to enter on the third æra of its existence, that of *philosophical investigation*. In that æra we now live. Its characters are—the observation of facts, not so much for their own sakes as for the illustrations they afford of the laws of the science; careful experimental inquiries into the phenomena of vegetation, not undertaken as isolated researches, but with a view to their comparison with vital phenomena throughout animated nature; minute anatomical investigation under the microscope, not conducted merely to display new forms of structure, but in the hope of solving, if possible, the problem of the ultimate structure of tissues; the construction of local floras and publication of local catalogues, not with the limited view of assisting the inhabitants of a province to a knowledge of their vegetable compatriots, or with the pardonable vanity of showing how many fine plants grow in the author's country, but in order that the great laws of the distribution of organized beings on the surface of our globe may be discovered and developed; and the construction of systematic arrangements, not framed solely for the ascertaining of the natural alliances of families, important as such object is, but also with the view of discovering the great laws which doubtless regulate those alliances equally in the animal and vegetable kingdoms."—p. 19.

It has always appeared to us that those who are the loudest in their outcries against the Linnæan system, must be unacquainted with, or to say the least, forgetful of, what Professor Forbes has not omitted to notice, namely, the well-established fact, that while Linnæus was endeavouring to perfect his artificial system, as a means whereby a chaotic mass of materials might be reduced to order, he was no less assiduously labouring to discover the true laws of a natural arrangement, and this, he ever insisted, ought to be the grand aim of the researches of every botanist. Thus, in his 'Philosophia Botanica,' after enumerating the different systems and methods of his predecessors and contemporaries, as well as his own sexual system, and another method founded on the calyx, he observes:—"The fragments of a natural method are studiously to be sought for. This should be the grand desideratum with every botanist:" the necessity for endeavouring to attain this desideratum being enforced in other parts of the same work. He then proposes what he modestly calls the *fragments* of a natural method: these exhibit all the genera known to the author arranged in sixty-eight orders. There is, moreover, abundant evidence on record to prove that Linnæus himself was the *founder* of that system which has since been so much improved by the eminent botanists who have turned their attention to this branch of the science: such was the expressed opinion of the late Sir Joseph Banks; and Bernard de Jussieu, with all the candour of a great mind, says, in a letter to Linnæus,—"You may now devote yourself entirely to the service of Flora, and lay open more completely the path you have pointed out, so as at length to bring to perfection a natural method of classification, which is what all lovers of Botany wish and expect."

We find that we have been strangely led away from the immediate subject of the present notice by this discussion; but we trust the digression needs no apology. In conclusion, we can honestly say that we heartily recommend Mr. Lees's very neat little book, to all who feel an interest in the subject of the geographical distribution of British plants, and more especially to the botanical visitants of Malvern.

Art. CLXV. — *Varieties.*

350. *Note on Linaria Cymbalaria.* On the 28th of May, 1841, my father called my attention to a curious circumstance respecting the ivy-leaved toad-flax, or Aaron's beard (*Linaria Cymbalaria*). — Having a plant in his study, dependant from a suspended flower-pot, he observed that all the flowers invariably turned towards the window, which faced the south. Immediately after the blossoms had fallen off, and the seeds began to perfect, the stems on which they were placed gradually turned round away from the light, to the back of the plant. Conjecturing the cause of this latter motion, he supposes they revert for the purpose of depositing the seeds. In order to understand this, we must recollect that the toad-flax is procumbent and pendulous, growing on old walls in its native state. Consequently it is necessary that the inflorescence, which uniformly projects from the wall, should after the fall of the corolla turn towards the back of the plant, in order to deposit the seeds on the wall, otherwise they would fall to the ground and perish. — *Robert Dick Duncan; Vale of Almond, Mid Calder, Edinburghshire, June* 10, 1843.

[The experience of our readers will suggest many other examples of this phenomenon: the Cyclamen offers a curious and interesting instance; and the common pimpernel, being a trailing plant, is analogous to the case above mentioned. In Lindley's 'Introduction to Botany' in the chapter on "The Directions taken by the Organs of Plants," is the following passage on this subject:—"The ovaria often take a different direction after the fall of the corolla than they had before. Thus, during flowering, the ovarium of Digitalis purpurea was nodding like the flower, the direction of which it was compelled to follow. Immediately after the fall of the corolla, it turns upwards towards the light, to which it is attracted by its green colour. A contrary phenomenon is presented by the ovarium of Convolvulus arvensis. The flower is turned towards the sky: as soon as it has fallen, the ovarium takes a direction towards the earth, bending down the peduncle. This cannot be due to the weight of the ovarium, which is much lighter than its peduncle, but must depend upon its disposition to avoid the light, on account of its pallid hue, which is nearly the same as that of the root. In Convolvulus sepium, on the contrary, in which the ovarium is equally pale, its erect position is maintained, and the influence of *decoloration* counteracted by the greater affinity to the light of two large green bracteæ in which it is enveloped."—p. 286.—*Ed.*]

351. *Note on Cystopteris alpina at Low Layton.* Having heard, about four or five years ago, that this interesting fern — all trace of which had been long obliterated by the reparation of the ancient wall on which it once grew luxuriant and plentiful — had again made its appearance in the original station, and that a specimen then recently obtained from thence had been exhibited at one of the Linnean meetings; I was induced to extend my wanderings as far as Low Layton

for the express purpose of endeavouring to obtain a sight of a plant, the identity of which had given rise to much difference of opinion among several of our most distinguished botanists, although I was entirely ignorant of the precise locality said to afford the little rarity. Numerous were my enquiries, and long and wearying my researches about "old walls;" and after hours of exertion I well nigh feared that my excursion would prove fruitless, when I was fortunately directed to an individual in the neighbourhood who knew the station well, and had recollection of the visits of metropolitan botanists in search of the plant, but who himself doubted its existence there at that time. However, on my proceeding thither by his direction, judge my great delight at beholding, without much trouble in searching for them, from thirty to forty specimens, some beautifully fruited, and all in a thriving state. Several others, I dare say, might have been detected on a more minute inspection. I contented myself with bringing away three or four plants only, one of which I have preserved in my herbarium, leaving the rest to repay the pains-taking of such others of the lovers of our ferns as might chance to bend their steps that way. Since the date above alluded to, I learn from a friend that the wall has again been repaired and beautified, and the plant apparently "destroyed" a second time; so that it may not perhaps just now be met with, although so well established does it seem to have been in that famed spot, and such the known tenacity of its existence, that we may well suppose it far from impossible that some future patient investigator may yet have the pleasure of recording its re-appearance at a remote day. My recollection of the circumstance of finding this fern has been refreshed by reading Mr. Newman's charming little note of his visit to Ham-bridge, in search of Asplenium viride, as recorded in the August number, (Phytol. 671). That gentleman, however, does not tell us he supposes that that plant, being alien to the entire Worcestershire district, is "probably only an escape from a garden," although in his elegant 'History of British Ferns' he mentions the like as his belief respecting the somewhat parallel case of the Cystopteris at Layton. Are the plants published under the names of C. regia and C. alpina in the Lancashire fern-list (Phytol. 477) identical with the Layton plant? — *Edward Edwards; Bexley Heath, Kent, August* 4, 1843.

352. *Cotyledon lutea.* Among several miscellaneous matters of botanical prints and tracts picked up at a sale some years ago, some part at least of which, I was told, had formerly been in the possession of the late Dr. Dyer, there occurred an odd number of the original

edition of 'English Botany,' which contained the plate of Cotyledon lutea, and at the foot of Sowerby's figure was written a memorandum in ink,—" *Specimens on Ashtead Park-wall near Epsom—indig: vide Hist. Epsom Appendx.* 1824." As this species is still retained in our catalogues, although very dubious habitats only are given for it, and, as far as I am aware, the one just named is not among them, I should feel gratified, and so, doubtless, would other readers of 'The Phytologist,' to hear tidings of the plant or of the Epsom locality. Possibly some one of the readers of that useful journal may know the spot, or possess and could refer to the 'History of Epsom' alluded to, a work with which I am unacquainted.—*Id.*

[We also should feel great pleasure in learning the history of the specimens of Cotyledon lutea " on Ashtead Park wall near Epsom," though we fear there is no chance of establishing their claim to be " indigenous " there. Our esteemed correspondent, Mr. G. S. Gibson, has kindly favoured us with some extracts from a note received by him from a friend residing in Somersetshire, which, although not amounting to positive evidence that the plant is really to be found in that county, yet carry with them such an air of probability, that we feel great pleasure in laying them before our readers. Mr. Gibson has not seen the specimen alluded to ; but he informs us that the locality is " Blackdown Hill, three miles from Wellington, Somerset : " his correspondent says, — " The specimen that I have was gathered about six years since, and so completely answers the description and plate given of it in Smith and Sowerby's Botany, that I think we cannot be mistaken ; it was a bright yellow, with a spike of flowers, but as they were not expanded, it is imperfect. At the time it was gathered there appeared to be only one root ; since that time we have searched for it, but have always been unsuccessful." This information is exceedingly interesting, since it points out a particular locality, to which especial attention should be paid by those who have the opportunity. Our information respecting the stations of this plant has hitherto been very vague, amounting to no more than that it was " Seen by Mr. Hudson, in the garden of a Mr Clement, who received it from Somersetshire. Roots, given by Mr. Hudson to the Chelsea garden, have long flourished there, and from thence the figure in *Eng. Bot.* was drawn." * In Turner and Dillwyn's 'Botanist's Guide' it is said to grow on " walls and rocks in the West Riding " of Yorkshire, on the authority of Mr. Tofield ; and in a foot-note Mr. Turner says, — " Mr. Fairbairn informed me that the stock of this plant, now in the Chelsea garden, originated from a Yorkshire root introduced by Mr. Hudson."† The above seems to be the sum of all that is known about this beautiful plant, as a British species ; we should be truly glad to have its claims to that rank fully established.—*Ed.*]

353. *Pæonia corallina.* Since my enquiry respecting the existence of this species (Phytol. 580), through the condescension of a kind botanical friend I have been favored with an exquisitely beautiful and perfect specimen, obtained in May last from the Steep Holmes station, where I understand the plant, although become extremely scarce,

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* English Flora, ii. 315.

† Botanist's Guide, ii. 692.

may possibly remain till future seasons, from the great difficulty of attaining it on the *perpendicular* cliffs, where it now grows. With regard to the Gravesend locality (Phytol. 683), I have several times endeavoured to obtain information of Betsam country-folk — no bad authorities in the case of a plant so well known as the pæony is to most persons; but my enquiries have not elicited that it has ever been seen within memory in a wild state anywhere in that neighbourhood. Of course, at this distance of time it is impossible to trace old Gerarde's "conny-berry," or the grounds of farmer Bradley.—*Id.*

354. *Note on drying Plants for the herbarium.* Much of the discussion on the subject of immersing plants in hot water previously to drying them for the herbarium, appears to have arisen from the individuals who have practised it considering the principle intended for *general application.* Now four fifths of our native plants require nothing but care in changing the papers, to preserve both colour and form in the greatest perfection. And of these I have no doubt that the greatest part would be *injured,* rather than improved, by the hot water; Galeobdolon luteum for instance, (Phytol. 673): consequently they do not afford a fair test of the principle. It is with plants which defy the ordinary methods, such for example as several of the Rhinanthaceæ, that we must have recourse to something more than simply changing the papers; and the experience of myself and friends shows hot water to be that resource. Mr. Gibson's plan of applying artificial heat (Phytol. l. c.) is by far the best and speediest method yet made known for drying the generality of plants; but it will not do for certain species, especially succulent ones, any more than hot water is required for Asperula or Barbarea, which indeed suffer from its application. Experiment alone will indicate for what particular species the hot bath is necessary. In reference the remark on p. 677, I must beg to enquire what is the use of selecting the finest and most perfect specimens for drying, if we are subsequently to dissect and mutilate them, and so have all our work to do over again? Even if our intention in forming a herbarium were future dissection of the specimens, the hot water cure cannot interfere with their utility for that purpose, because with ordinary care the parts of fructification need not be wetted. In my own herbarium I preserve a perfect specimen to show the plant, and an inferior one, or some fragments, to cut up when I have occasion. Ophrys apifera, which is the only Orchis I have yet dried on the hot water principle, is perfect both in form and colour: the flowers were not immersed. Lathræa squamaria has de-

fied every method I have had the opportunity of trying. — *Leo. H. Grindon; Manchester, August* 7, 1843.

355. *Note on Epimedium alpinum.* On the 19th of June last I visited Bingley, for the purpose of making myself better acquainted with the Carices &c. which grow in that neighbourhood, and more particularly Epimedium alpinum, as in Mr. Watson's New Guide (at p. 275) there is the following reference to that plant:—"*Epimedium alpinum.* Bingley woods, B. G. (is it still there?)" In reply to this question I would say that the plant, to my knowlege, has been in the neighbourhood of Bingley for more than twenty years, as I gathered specimens in that locality on the 7th of May, 1821, and again in 1834. In the fifth edition of Withering's 'Systematic Arrangement' (ii. 258), I find the following reference to Bingley woods: — "Mr. Hailstone, in Whitaker's Craven, observes that it certainly is not now to be found in Bingley woods." There is also something said on this plant in the 'Yorkshire Flora,' and in the *second* part of Watson's Guide, but as I have not these books at hand, and do not now recollect what is said, I will refer the reader to look for himself. How the Epimedium may have got into the neighbourhood of Bingley, I know not; but certain it is that that plant *is and has been in that neighbourhood for a great length of time*, and not confined to one particular place, since I have found it on both sides of the river. On the 19th of June last, Mr. Ainley showed me the plant growing on the left hand side of the river going from Bingley towards Leeds. When I gathered the plant in 1821 and 1834, I got it on the other side of the river, and much further from the town. I do not here make any attempt to prove that Epimedium alpinum is a true British plant, but merely to say, in answer to Mr. Watson's question, that the plant is still to be found in the neighbourhood of Bingley. — *Samuel Gibson; Hebden Bridge, August* 6, 1843.

356. *Note on an apparently undescribed British Carex.* Perhaps you will allow me to trespass a little more on your pages, as I have a few remarks to offer on a Carex, which appears not to be described in any of our works on British plants. The plant I wish to notice is one that is mentioned by Mr. Lees, at p. 48 of his 'Botany of the Malvern Hills.' It is now some time since Mr. Lees sent me a specimen of his Malvern plant, and wished to have my opinion as to its specific identity. The specimen sent at that time was in a very young state, and I imagined it to be the same as my Carex ovalis, var. *bracteata;* however, Mr. Lees has sent me specimens of more complete growth, which prove it to be very different from that plant. A few days ago

I showed the specimens to Mr. Babington, who told me that he believed the plant was described by continental writers, and he thought he had seen continental specimens. To this plant I have given the provisional name of Carex Malvernensis, which will serve until we can make out whether the plant has been previously named or not. It differs from C. ovalis in having a leafy bractea, which is much longer than the spike; it also differs from that species in its fruit being somewhat different in form, and only half the size of that of ovalis.—*Id.*

357. *Note on Ranunculus hirsutus.* This appears to be a plant far from plentifully distributed. When diligently sought for on the authority of various local lists, it has uniformly eluded me; in fact, for some years I have ceased to search for it, and stumbled upon it at length only by accident, while driving the other day in the lanes between Thorpe-le-Soken and Great Holland, in the county of Essex, where it forms gay patches wherever the turf is pared away. In the salt marshes in the same neighbourhood the most conspicuous plants are Statice Armeria and Limonium, Plantago maritima, Scirpus maritimus, Triglochin maritimum, Arenaria marina, Atriplex portulacoides. The way-side plants next worth mentioning, after Ranunculus hirsutus, are Onopordon Acanthium, Inula pulicaria (a far less common plant than I. dysenterica), Veronica polita and Erysimum cheiranthoides.—*W. L. Beynon; Down Hall, near Harlow, August* 7, 1843.

358. *Note on Epilobium roseum.* This plant is, I fancy, frequently overlooked by herborisers. My acquaintance with it commenced, I suspect, many years ago, by the side of a brook running into the Trent, near Barton-under-Needwood, in Staffordshire, though it was not till yesterday that I satisfactorily determined the species, upon again noticing the same plant growing with its congeners, E. hirsutum and E. parviflorum, along the banks of a stream called the Pincey, not far from its junction with the Stort, near Harlow, Essex. It may be detected at some distance, by the thin and delicate character of the leaves, the reddish hue of the lower part of the stem, and, above all, by the rosy, drooping, half-closed flowers. As plants of the same neighbourhood I may specify Bupleurum rotundifolium, Trifolium ochroleucum, Campanula glomerata, Linaria minor, spurium and Elatine, Galeopsis Ladanum, Chlora perfoliata, Gentiana Amarella, Mentha Pulegium, Euonymus europæus, Cichorium Intybus and Verbena officinalis.—*Id.*

359. *Note on a new locality for Isnardia palustris, and on the small White Water-lily.* Having occasion to pass through the New Forest last week, and bearing in mind Mr. Pamplin's "Enquiry respecting 'Nymphæa alba minor,'" in the March No. (Phytol. 525), I made a point of visiting the stream and pools at the entrance of the village of Brockenhurst from Lyndhurst. I found the Nymphæa alba there, in abundance, and in full flower, but not varying more than usual in size. I had, however, the satisfaction of seeing in one of the pools, and in a neighbouring bog, the rare Isnardia palustris, of which this is, I believe, the third known British station. I may add that I gathered a very small white water-lily, in the year 1810, in shallow water on the margin of Loch Ard near Aberfoil, in which, the size excepted, I could find no difference from the common N. alba. — *W. Borrer; Henfield, August* 12, 1843.

360. *Note on the Cerastium latifolium of the Linnean herbarium.* In 'The Phytologist' for the present month (Phytol. 677), Mr. Edmonston disputes the correctness of an idea expressed by myself in a former number (Id. 586), to the effect that the Cerastium latifolium of Smith and British botanists in general, is truly the species so named by Linnæus; and further, that the Shetland plant described and figured by Mr. E. (Id. 495) is only another form of the same species. My own copy of 'The Phytologist,' up to May last, being at present in the hands of a binder, I am unable to refer back to the exact words of either Mr. Edmonston or myself; but can state that the accuracy of my own opinion, as formerly expressed, was afterwards fully confirmed by a reference to the Linnæan herbarium. There are three specimens in that herbarium, labelled "latifolium" in the handwriting of Linnæus. One of these corresponds tolerably well with the figure and description of the Shetland plant, except that the leaves are elliptic varying to ovate (not orbicular, as their length is double their breadth), and that the peduncles vary from equal with the flower to twice or three times the length of the latter. The other two specimens depart more widely from Mr. Edmonston's Shetland plant, and are quite as well represented by that gentleman's figures of E. alpinum, as by his figure of the Shetland E. latifolium. These two specimens being single flowering branches, without root or capsule, do not show all the characters of the species, but they correspond very closely with my flowering specimens from Perth and Sutherland. Their leaves vary from lanceolate acute to elliptic obtuse. Their bracts are alike in size and form, being smaller and more acute than the leaves; but on one of the specimens the bracts have a broad membranous margin, while on the other specimen they are herbaceous. The peduncles are rather longer than the solitary flowers. In all three specimens there is a well-defined membranous margin to the sepals; but this margin is not broader in these specimens of C. latifolium, than is the mem-

branous margin of the sepals in the single specimen of C. alpinum which is preserved in the same herbarium, and also labelled in the handwriting of Linnæus. The specimen of C. alpinum appears quite glabrous to the naked eye, and has obtuse leaves, like some of my Highland and cultivated specimens of the same species. Mr. Edmonston is doubtless correct in supposing his Shetland plant to be the C. latifolium of Linnæus, but these specimens in the Linnæan herbarium show that he is quite wrong in the specific characters by which he proposes to distinguish C. alpinum and C. latifolium. Probably the best character will be found in the seeds; those of C. latifolium (from Perthshire and Sutherland) being muricate, while those of C. alpinum (from Perthshire) are simply rugose. C. alpinum has larger and paler seeds, with an oblique orifice to its cylindrical capsule. In C. latifolium, the ovate capsule has the orifice scarcely or not at all oblique; though I cannot assert that these characters (drawn from the form and orifice of the capsule) are constant in the living plants, and they are often lost in the process of drying the specimens. I write of the Linnæan specimens as they appeared to the unassisted eye, not having any magnifier at hand when inspecting them.—*Hewett C. Watson; Thames Ditton, August* 12, 1843.

361. *New locality for Jungermannia Turneri*, Hook. In May, 1842, while walking through Tilgate forest, Sussex, I was fortunate enough to gather Jungermannia Turneri, a species I believe found by no one previously, except by the original discoverer, the late Miss Hutchins, in Ireland.—*Edward Jenner; Lewes, August* 21, 1843.

362. *Surrey localities for Schistostega pennata.* In June, when at Farnham, Surrey, I had the good fortune to discover Schistostega pennata, in great abundance, in Mother Ludland's cave, in all its varied and beautiful colours. St. Catherine's Hill, Guildford, being of similar sandstone, I was induced to search for it there, and found it in the sand-martins' holes.—*Id.*

363. *Erratum at p.* 592. Will you have the kindness to substitute the name of "Mr. Edward Jenner, of Lewes," for that of "Dr. Edward Jenner," in the Report of the Microscopical Society, (Phytol. 592). I shall, perhaps, at some future time, explain my views as to the nature of Gomphonema, Achnanthes, Cocconema, &c., which I do *not* consider to be Zoophytes.—*Id.*

364. *A word on Lastræa spinulosa.* Mr. Babington, in his excellent 'Manual,' has the following remarks on the plant usually known by this name.—

"*β. linearis*; frond mostly erect scarcely more than twice pinnate often very narrow its sides nearly *parallel* in the lower part, lobes nearly flat with a *wavy midrib*, *indusium 'entire.' A. spinulosum* (Sm.). Small forms of this are often called *A. dumetorum.* I am in doubt if these plants are distinct species or varieties, but require a more perfect knowledge of them than I now possess. It appears that the *A. spinulosum* (Willd.) is a different plant, having 'glandulose bristles' on its indusium; if therefore Smith's plant proves distinct it will require a new name, and I would suggest *Smithii* as highly appropriate."—p. 386.

It appears to me that this view of the case is untenable, and I am the more inclined to dissent from it, because Mr. Babington has, I fear, been misled by some previously published observations of mine.—Smith emphatically states that the frond of his Aspidium spinulosum is "triangular or deltoid;" it is thus figured in the 'English Botany,' (t. 1460); the authentic specimen in his herbarium has this form; and all the evidence arising from Smith's description, figure and specimen, convince me that a small frond of the plant we call Lastræa dilatata, was and is Smith's Aspidium spinulosum. Mr. Babington's *linearis* appears to me to be the Polypodium spinulosum of Withering, found in "bogs on Birmingham heath;" it is also the plant described by myself as "the *linear* type, erect, rigid, pale sickly green, lateral margins of the frond nearly linear, &c." This term (linear), apparently adopted by Mr. Babington (*linearis*), is I believe the only distinguishing epithet the plant ever received. Sir J. E. Smith's part in the transaction appears to have been *to misunderstand Withering*, and that, surely, does not entitle him to the proposed honour. Had Mr. Babington proposed to call the plant Lastræa Witheringii, as a compliment to the original describer, no objection could have been raised; but in the present instance the proposed honour appears to me to be misapplied, and I hope Mr. Babington will allow the plant, if raised to the rank of a species, to bear the name of *linearis*, as it certainly has no claim to that of *Smithii*, or even to that of *spinulosa*.—*Edward Newman; Hanover Street, Peckham, August* 24, 1843.

ART. CLXVI.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 4, 1843.—J. E. Gray, Esq., F.R.S., &c., President, in the chair.

Read, "Observarions on a variety of Rosa sarmentacea, *Woods* (found near Bridgewater by Mr. Clarke)," by Edwin Lees, Esq., F.L.S.

Mr. L. had known this variety for some years; and though there is considerable difference in the more or less deeply cut serratures of the foliage, he had always found the calyx to be fringed with stalked glands, as well as the flower-stalks. The tube is generally but sparingly so, or even naked. It is abundantly covered with glands in this variety. In some manuscript observations on the species, made in 1836, Mr. L.

had recorded,—" Calyx pinnate, rather densely covered with glandular bristles, which united to a purplish bloom on the segments, as well as on the tube, gives the rose a peculiar and very elegant appearance." The petioles are always more or less glandular, without prickles, differing in this respect materially from Rosa canina, as well as in the particulars mentioned above. There is another point, too, which deserves attention. Mr. L. had often observed that the young foliage of this species has a faint but very perceptible cowslip-like scent, but he had never observed this in the leaves of R. canina. Mr. L. contended that Rosa scabriuscula was a good species, though it must be observed that the calyx-tube varies in being more or less covered with stalked glands, and that therefore Smith is wrong, in the 'English Flora,' in saying with regard to it, " quite smooth and naked."

The character of this plant, as differing from Rosa canina, consists in the glandulosity of the pinnate calyx and of the peduncle, and in the petioles being slightly glandular, without prickles, or with very weak ones.

This rose, as far as Mr. Lees had observed, is not very abundantly distributed, being somewhat local, and plentiful only in particular spots.

Read, " Notice of the Mosses found in the neighbourhood of Bristol," by Mr. G. H. K. Thwaites, M.E.S. The author enumerated 133 species as indigenous to that locality, several of which appear to be new to the British Flora. Amongst those most interesting to the British muscologist, may be mentioned the following.

Didymodon Bruntoni
  rigidulus
  crispulus, *Wils. M.S.*
  brachydontus, *do.*
  flexicaule
Trichostomum fasciculare
  polyphyllum
Barbula rigida
  convoluta
  lævipala
  cylindrica, *Wils.M.S.*
  latifolia
Funaria Muhlenbergii,
  [*β. patula*
Bryum albicans
  atropurpureum
  cernuum
  rostratum
Bartramia pomiformis
Leucodon sciuroides
Hypnum riparium
  murale
  piliferum
  salebrosum
Hypnum crassinervium
  strigosum
  circinatum
  cæspitosum
Hookeria lucens
Tetraphis pellucida
Encalypta streptocarpa
Weissia Starkeana
Grimmia orbicularis
Gynostomum viridissimum
  fasciculare
Orthotrichum Rogeri

The President drew the attention of the Society to an abnormal form of Ophrys apifera, which had been sent to him by a lady, from Dorking. The two lower flowers of the spike had two distinct united columns, the upper normal one being rather the longest, and overlapping the other; the upper flowers had three columns united into a singlar triangular mass; the upper petals of each of the flowers were rather reduced; the lips of the two lower flowers were small, and retained in part the usual character of the flower, but the lip of the upper flower was lilac, and exactly resembled the sepals in form and colour. The three sepals of the middle flower were united together nearly to the lip, as was the case also with two sepals of the terminal flower. The ovaries of all the flowers were of the normal structure.

The President stated that the Rev. Gerard E. Smith had figured an Ophrys with a similar triple column, but his specimen was quite destitute of a lip. He also observed that it might be worth while to examine if this excessive development of the column is always coexistent with the reduced development of the lip; and that this structure was quite distinct from the monstrosity of this plant described by Mr. Ilis, where each of the three petals was transformed into a polleniferous column.—*G. E. D.*